
ICARDA and the Arab World

Ties that Bind, No. 6



International Center for Agricultural Research in the Dry Areas

About ICARDA

Established in 1977, the International Center for Agricultural Research in the Dry Areas (ICARDA) is governed by an independent Board of Trustees. Based at Aleppo, Syria, it is one of the 16 centers supported by the Consultative Group on International Agricultural Research (CGIAR), which is an international group of representatives of donor agencies, eminent agricultural scientists, and institutional administrators from developed and developing countries who guide and support its work.

The mission of the CGIAR is to promote sustainable agriculture to alleviate poverty and hunger and achieve food security in developing countries. The CGIAR conducts strategic and applied research, with its products being international public goods, and focuses its research agenda on problem-solving through interdisciplinary programs implemented by one or more of its international centers, in collaboration with a full range of partners. Such programs concentrate on increasing productivity, protecting the environment, saving biodiversity, improving policies, and contributing to strengthening agricultural research in developing countries.

In the context of the challenges posed by the physical, social and economic environments of the dry areas, ICARDA's mission is to improve the welfare of people in the dry areas of the developing world by increasing the production and nutritional quality of food while preserving and enhancing the resource base. ICARDA meets this challenge through research, training, and dissemination of information in partnership with the national agricultural research and development systems.

ICARDA serves the entire developing world for the improvement of lentil, barley and faba bean; all dry-area developing countries for the improvement of on-farm water-use efficiency, rangeland and small-ruminant production; and the West Asia and North Africa region for the improvement of bread and durum wheats, chickpea, and farming systems. ICARDA's research provides global benefits of poverty alleviation through productivity improvements integrated with sustainable natural resource management practices.

Much of ICARDA's research is carried out on a 948-hectare farm at its headquarters at Tel Hadya, about 35 km southwest of Aleppo. ICARDA also manages other sites where it tests material under a variety of agroecological conditions in Syria and Lebanon. However, the full scope of ICARDA's activities can be appreciated only when account is taken of the cooperative research carried out with many countries in West Asia and North Africa and elsewhere in the world.

The results of research are transferred through ICARDA's cooperation with national and regional research institutions, with universities and ministries of agriculture, and through the technical assistance and training that the Center provides. A range of training programs is offered extending from residential courses for groups to advanced research opportunities for individuals. These efforts are supported by seminars, publications, and specialized information services.

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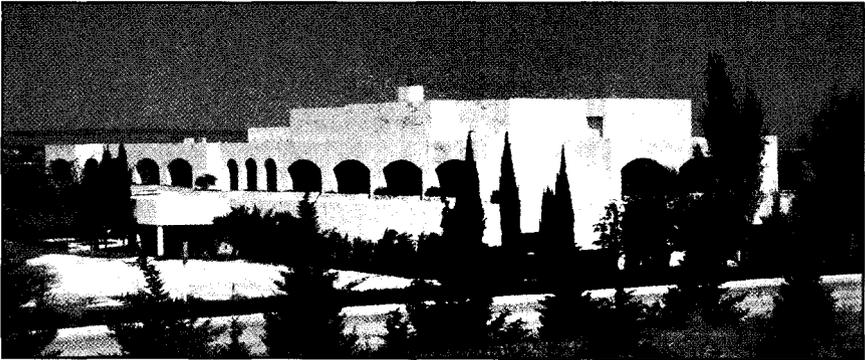
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Until the middle of the twentieth century, the Arab world was a food exporter; Arab farmers were able to meet the local demand and export the surplus to Europe, Asia, and Africa. But, with the unparalleled population growth in the region, this era of self-sufficiency has come to an end. Today, in spite of some notable exceptions, the demand for food in the Arab countries far exceeds local production, leading to an increase of dependency on foreign exporters, and has led to a food-import bill that the majority of them cannot pay.

Since its establishment, the International Center for Agricultural research in the Dry Areas (ICARDA), based in Aleppo, Syria, has worked side by side with scientists and technicians in all parts of the Arab world to not only breed new, more productive crops, but also to strengthen and conserve important human and natural resources that underpin agriculture in the region.



ICARDA's headquarters, about 35km south west of Aleppo, Syria.

ICARDA is the only international center which is concentrating its research on the Arab and Islamic countries in particular. It has a growing role in promoting the Arab world's capacity for comprehensive, sustainable agricultural development, thanks to the support provided by several countries and international bodies—notably the World Bank, the Arab Fund for Social and Economic Development, the OPEC Fund, and the Islamic Bank for Development.

In an effort to meet the diverse socioeconomic environmental challenges of the region, the Center is following a multidisciplinary approach

adjusted for a wide range of socioeconomic, agricultural and climatic circumstances. ICARDA scientists and their Arab colleagues are working hard to end stagnation in agricultural production and reverse environmental degradation in all countries of the Arab world, from the Atlas Mountains in Morocco to the Arabian Gulf and Indian Ocean.

From its foundation in 1977, the Center has been undertaking crop breeding, training and genetic-resources conservation activities, as well as socioeconomic and environmental surveys. The devolved regional programs represent the cornerstone of the Center's research and training activities in the Arab countries, with regional programs to cover the Maghreb, the Nile Valley and Red Sea, West Asia, and the Arabian Peninsula.

The following are some examples of the impact of ICARDA on agricultural development in the Arab world.

The adoption of improved varieties

Between 1978 and 1995, the Arab national programs adopted a total of 226 varieties of cereal and food and forage legumes that had been developed either by ICARDA or with its support (Table 1). ICARDA undertakes thorough studies on the adoption of varieties and the consequences of that adoption, with the objective of assessing the impact of these varieties on farmers in the region.



One of the successful Cham wheat lines bred at ICARDA that have helped raise yields and production in the Arab world.

Table 1. Cereal and food and forage legume varieties adopted by national programs in the Arab countries during the period 1978-1995.

Country	Barley	Durum wheat	Bread wheat	Chickpea	Lentil	Faba bean	Peas	Forage
Algeria	2	10	12	4	3			
Egypt	2	5	14	1	1	2		
Iraq	2		3	2	1			
Jordan	1	5	3	2	1			4
Lebanon	1	3	3	2	2			
Libya	2	12	3	1	1			
Morocco	7	6	5	7	1			5
Sultanate of Oman			2	3			4	
Qatar	2		1					
Saudia Arabia	1	1						
Sudan			4	2	2	6	2	
Syria	3	5	6	3	1	1		
Tunisia	5	2	5	5	2			
Yemen	2		12					
UAE			3					
Total	30	49	76	32	15	9	6	9

Varieties adopted in 1996 should have been included to update this list to 1996. However, the list of varieties released and adopted in 1996 was not ready at the time this document went to the press.

Training

Training is an integral part of agricultural research. Research and training are two sides of the same coin; no successful, effective research program is possible without qualified technical personnel.

With this in mind, ICARDA gives special attention to the subject of training staff of national programs. It organizes training courses both at and outside its Aleppo headquarters, including in-country, sub-regional, and regional courses. It also supports and sponsors specialists identified by the different national programs for individual training at ICARDA. These work side by side with ICARDA's experts for long or short periods, concentrating on subjects related to the research they are conducting in their national programs. ICARDA also provides individual training

opportunities as part of Msc and PhD study; students are registered at a university and conduct their research under the supervision of the appropriate ICARDA scientist. ICARDA provides wholehearted support to all trainees and students—including all the facilities needed for their research, including training material and publications.

Table 2: Number of participants from the Arab regional programs in the training courses organized by ICARDA during the period 1978-1996.

Country	Number of trainees	% of total number
Algeria	401	7.16
Bahrain	4	0.07
Egypt	775	13.80
Iraq	161	2.87
Jordan	370	6.60
Kuwait	6	0.11
Lebanon	305	5.45
Libya	167	2.98
Morocco	609	10.87
Sultanate of Oman	77	1.37
Qatar	23	0.41
Sudan	331	5.91
Saudi Arabia	60	1.07
Syria	1724	30.78
Tunisia	345	6.16
Yemen	232	4.14
UAE	11	0.20
Total	5601	75

The majority of the participants in the ICARDA training courses are Arabic speakers. During the period 1978-1996, 5,601 experts, students, and technicians from the Arab countries attended training courses either sponsored by ICARDA or organized in cooperation with it. This represents 75% of the total during that period. The Arab Fund for Economic and Social Development is one of the most important sponsors for these training activities.



An international effort: ICARDA scientist Dr Lahcen Grass, from Morocco, taking part in a course on Morphological Variety Description. With him are (left to right) trainees Oussama Rihaoui (Syria), Victoria Askari (Iran) and Driss Mghabar (Morocco). Trainees from more than 90 countries have participated in ICARDA courses since the 1970s, but most have been from the Arab world.

New technologies

Finding solutions to the problem of food production in the Arab world is multidisciplinary. The development of improved resource management methodologies and technologies has great potential for increasing food production. The Center works closely with Arab researchers on the development of water harvesting and supplementary irrigation techniques to increase production. It also works on livestock management research—highly important in a region which suffers a deficit in meat production.

Research networks

Collaboration with scientists in the development and management of research networks is one of the main features of ICARDA's activities in the Arab world. These networks are aimed at strengthening relations between researchers who are working in the same field or on the same



The Center encourages linkages between, not only scientists, but also farmers in various countries. Here, Egyptian farmers from the Mersah Matrouh project area, where ICARDA is providing technical backstopping, meet Syrian farmers to discuss their experience with cereal/legume rotations, on which they are working with ICARDA.

crop, in order to avoid duplication of work. It is also aimed at exchanging information and experience between researchers and coordinating efforts in the region as a whole.

The establishment of research networks involving scientists from the Nile Valley countries has been one of ICARDA's most worthwhile achievements. Funded by the International Fund for Agricultural Development (IFAD) and the Italian Government, this network—aimed at increasing faba bean production in Egypt, Sudan, and Ethiopia—became a model in the field of research. Today, of ICARDA's six regional programs, four are located within the Arab world. All aim to encourage the establishment of research networks in their region. These regional programs are: North Africa (based in Morocco and Tunisia); West Asia (based in Jordan); the Arabian Peninsula (based in Dubai, UAE); and the Nile Valley and Red Sea (based in Egypt). All these networks are based on three main components, which are: delegating responsibility for research to national scientists; briefing extension workers in the countries concerned; and ensuring genuine farmer participation in the research work. ICARDA has been effective in providing germplasm, technical publications and information, administrative support and specialized training, and organizing symposia, workshops and field days.

The impact of ICARDA on the Arab World

While it is difficult to fully monitor the impact of ICARDA's activities on the Arab World, tens of improved varieties of wheat, barley, faba bean, lentil, and chickpea have been adopted by many of the Arab countries (Table 1) This has contributed to increased productivity of these crops, leading, in turn, to an improved national income. Economists at ICARDA report that, since 1992, Syria has been producing a surplus of wheat, thanks at least in part to close collaboration between ICARDA and the Agricultural Scientific Research Directorate of the Ministry of Agriculture. Experts estimate that Syria earned a net additional amount of \$US 400 million in the 1994/95 season alone, as a result of cultivating improved wheat varieties and implementing appropriate agricultural technology. Using the same calculations for the Arab world as a whole, the net additional income would exceed \$US 2.5 billion annually.



Water supplies may be the the biggest single environmental threat facing the Arab world in terms of both quantity and quality. ICARDA is carrying out research into water-use efficiency, and this includes supplemental irrigation.

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